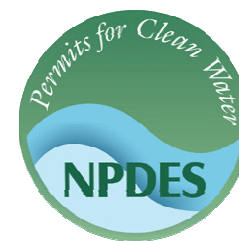


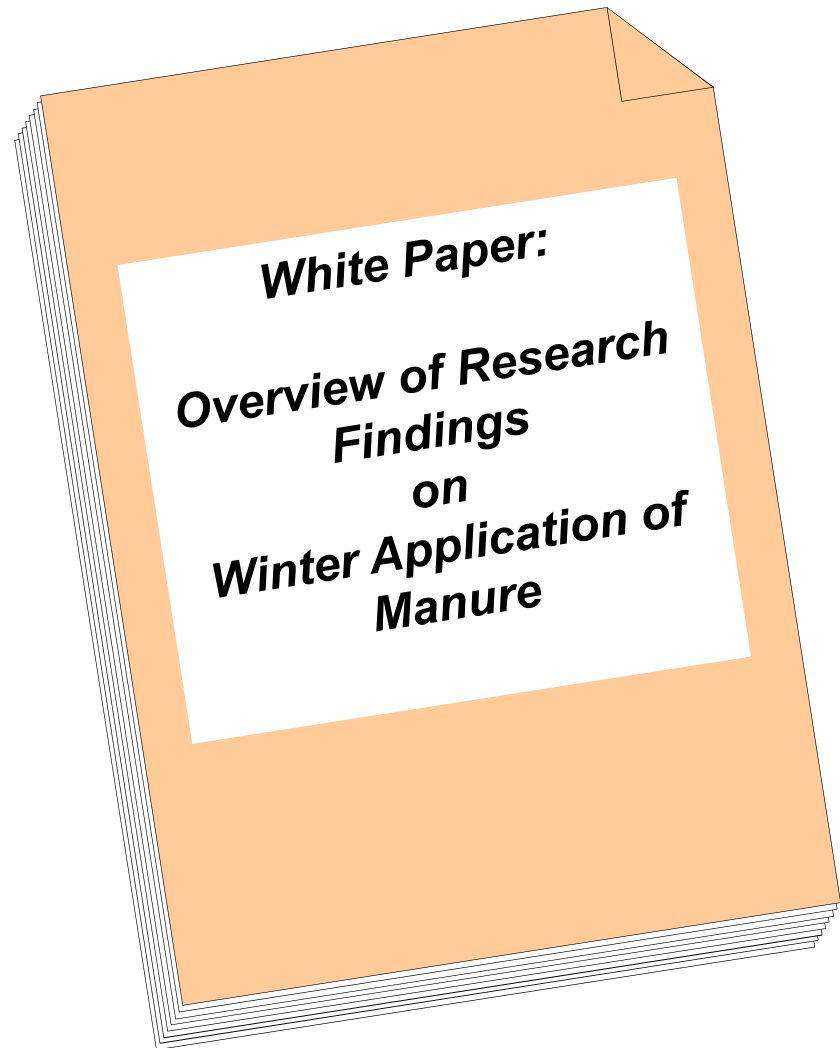
# EPA/SERA-17 Paper on Winter Application of Manure

Office of Wastewater Management  
October 2, 2014



# Purpose

Share with the Pacific NW CAFO workgroup the preliminary findings of the EPA/SERA-17 report:





# Briefing Roadmap

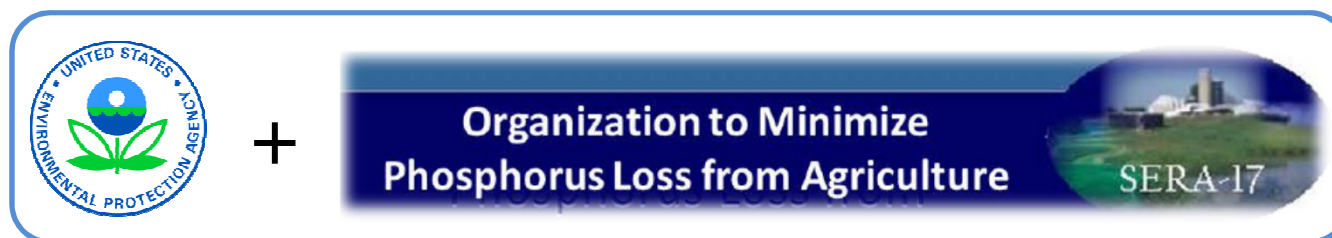
- Purpose of White Paper
- History of EPA/SERA-17 collaboration
- Process for developing White Paper
- Drivers for winter application
- Govt controls on winter application
- Potential next steps after White Paper



# Purpose of White Paper

- Facilitate an informed discussion on alternatives to winter application by describing:
  - Research on water quality impacts and risks from winter application
  - Existing federal and state restrictions on winter application

# EPA/SERA-17 Exchange



- SERA-17 is formally known as the *Organization to Minimize Phosphorus Losses from Agriculture* (<http://www.sera17.ext.vt.edu/>).
- SERA-17 is made up of research scientists, policy makers (incl. USDA), extension personnel, and educators.
- EPA/SERA-17 exchange serves as a forum for sharing information on key technical and regulatory topics.
- Exchange includes staff from EPA's Office of Water.





# Process for developing the paper

<i>Fall 2011 – Spring 2013</i>	Presentations on winter application at EPA/SERA-17 meetings Key personnel: Dr. John Lory, Caitlin Conover
<i>Spring 2013</i>	SERA-17 members identified core research
<i>Summer 2013</i>	EPA conducted literature review, drafted paper
<i>Spring 2014</i>	Feedback from EPA/SERA-17 workgroup
<i>Fall 2014</i>	Next: SERA-17 group to review draft
<i>Fall 2014</i>	Review by EPA management
<i>Winter 2014</i>	Disseminate paper—online on EPA’s website, academic journal, incorporate as training material, other???

# Why does winter application occur?

Common drivers cited include:

- Insufficient storage
- Time/labor management
- Avoid soil compaction
- Ensure adequate nutrient supply for spring planting



Photo: USDA/NRCS (<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ia/home/?cid=STELPRDB1243043>)



Photo: AgriNews (<http://agrinews-pubs.com/Content/Auction-Calendar/Livestock/Article/Producers-should-remember-manure-application-rules/15/7/9108>)

- Reduce odor, NH<sub>3</sub> volatilization
- Tradition
- Emergency



# Federal controls on winter application—EPA



- The Clean Water Act's NPDES program and Effluent Limitations Guideline standards relevant to winter application at large permitted CAFOs are that facilities must:
  - Ensure adequate storage
  - Identify site specific conservation practices
  - Ensure appropriate agricultural utilization of manure nutrients
- State technical standards serve as basis for determining “appropriate” nutrient management
- ***Note: Facilities that do not apply for NPDES permit coverage must be able to demonstrate that they are adhering to appropriate nutrient management planning***





# Federal controls on winter application—USDA



- USDA/NRCS has issued the NRCS Conservation Practice Standard 590 for Nutrient Management:  
*“Nutrients must not be surface-applied if nutrient losses offsite are likely. This precludes spreading on:*
  - *frozen and/or snow-covered soils, and*
  - *when the top 2 inches of soil are saturated from rainfall or snow melt.”*
- Exceptions based on certain specified conditions and adequate conservation measures
- Works indirectly as an official requirement in states that refer to it in their technical standards



# Comparison of state requirements

- ❑ As part of white paper, EPA gathered and compared state winter application requirements (*see handout*)
- ❑ State requirements vary widely according to two key dimensions:
  - Level of restriction: ranges from outright ban (Indiana, Missouri) to none (Connecticut, New Jersey).
  - Program feature: e.g., authority to grant waivers, “recommended” vs. required practices, exemptions for certain circumstances.

## A vertical collage of various farm animals. From top to bottom: two brown and white cows standing in a field; a black and white cow standing in a field; a large flock of white chickens with red combs; a large flock of white turkeys with red heads; a pink pig; two white goats; a brown horse; and a large flock of white sheep.

A vertical collage of various farm animals. From top to bottom: two brown and white cows standing in a field; a black and white cow standing in a field; a large flock of white chickens with red combs; a large flock of white turkeys with red heads; a pink pig; two white goats; a brown horse; and a large flock of white sheep.



# What comes next?

- Establish the science (write the White Paper)
- Improve awareness of risks
- Explore possible solutions
- Promote solutions



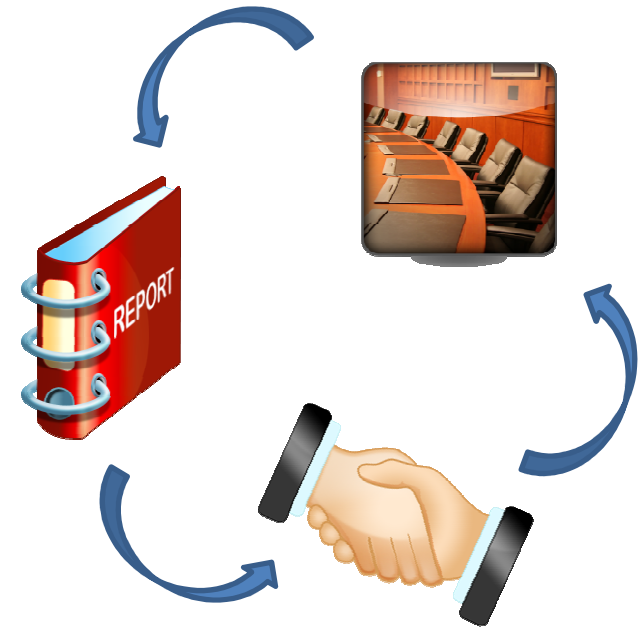


*After the White Paper....*

# Potential Actions to Improve Awareness

Need to work both with state/local entities and producers:

- State-to-State outreach
- Producer self-evaluation tools (e.g. Farmsmart)
- Outreach to specific geographic regions





*After the White Paper....*

## Possible Equipment/Practice Solutions— “Avoid” Runoff\*

- Alternative storage and processing: E.g., advanced screening, “Quickwash”, pack barns
- Advanced processing: E.g., digesters w/ nutrient recovery, gasification, biochar
- Others?

\* *From Avoid-Control-Trap framework*



Source: NDESC, 2005



Source: <http://www.energyworks.com/index.php?page=biopower>



*After the White Paper....*

## Possible Equipment/Practice Solutions: “Control” Runoff\*

- Advance land appl equipment: Injection/incorporation (being investigated by USDA)
- Shared equipment?
- Others?
- **Need to facilitate funding for solutions as well**



“Subsurfer” injection

Source: Pote, Dan. March 2014.

\* *From Avoid-Control-Trap framework*



*After the White Paper....*

## Promote basics: Nutrient management planning

- Adherence to “rate/timing/method” construct
- Is there really enough land?
- Application in excess of crop needs can lead to **runoff** from fields



Those discharges  
trigger the need for an  
NPDES permit!



# Questions?

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